ARTICLE 34

MODIFIED CLAIMS

Sub Cl. 7

1. Nucleic acid, **the sequence of which** is selected from the group consisting of sequences SEQ ID n° 1 to SEQ ID n° 25, and a homologous nucleic acid sequence thereof.

2. Nucleic acid, **the sequence of which** is selected from the group consisting of exon sequences as identified in table 2, and a homologous nucleic acid sequence thereof.

3. Nucleic acid comprising the sequence as shown in SEQ ID n° 26, a homologous sequence thereof, or a sequence identical to SEQ ID n° 26, except for a one base deletion of the nucleotide 1578 as shown in SEQ ID N° 26.

4. Isolated oligophrenin 1 polypeptide substantially comprising the aminoacid sequence of SEQ ID n° 27, or a homologous amino acid sequence thereof.

5. Vector for cloning and/or expression comprising a nucleic acid sequence of any of claims 1 to 3.

6. Host cell transfected with a vector according to claim 5.

7. Nucleic acid, **the sequence of which has at least 15 bases** and specifically hybridizes with a nucleic acid sequence according to any **of claims 1 to 2, under stringent conditions.**

8. Nucleic acid, **the sequence of which has at least 15 bases** and specifically hybridizes with a nucleic acid sequence according to **claim 3 under stringent conditions.**

9. Nucleic acid of claim 7 or 8, **the sequence of which** is selected from the group consisting of the sequences identified in table 3 or the complementary sequences thereof, said sequences identified in table 3 consisting of:

- nucleotide n° 727 to 746 of SEQ ID n° 2

- nucleotide n° 958 to 977 of SEQ ID n° 2
- nucleotide n° 375 to 394 of SEQ ID n° 3
- nucleotide n° 504 to 523 of SEQ ID n° 3
- nucleotide n° 418 to 437 of SEQ ID n° 4
- nucleotide n° 551 to 570 of SEQ ID n° 4
- nucleotide n° 423 to 445 of SEQ ID n° 5
- nucleotide n° 553 to 574 of SEQ ID n° 5
- nucleotide n° 388 to 407 of SEQ ID n° 6
- nucleotide n° 540 to 559 of SEQ ID n° 6
- nucleotide n° 436 to 458 of SEQ ID n° 7
- nucleotide n° 584 to 603 of SEQ ID n° 7
- nucleotide n° 219 to 239 of SEQ ID n° 8
- nucleotide n° 363 to 381 of SEQ ID n° 8
- nucleotide n° 108 to 128 of SEQ ID n° 9
- nucleotide n° 336 to 355 of SEQ ID n° 9
- nucleotide n° 361 to 380 of SEQ ID n° 10
- nucleotide n° 492 to 511 of SEQ ID n° 10
- nucleotide n° 81 to 100 of SEQ ID n° 11
- nucleotide n° 223 to 242 of SEQ ID n° 11
- nucleotide n° 188 to 207 of SEQ ID n° 12
- nucleotide n° 300 to 319 of SEQ ID n° 12
- nucleotide n° 166 to 189 of SEQ ID n° 13
- nucleotide n° 259 to 278 of SEQ ID n° 13
- nucleotide n° 133 to 152 of SEQ ID n° 14
- nucleotide n° 250 to 269 of SEQ ID n° 14
- nucleotide n° 151 to 170 of SEQ ID n° 15
- nucleotide n° 293 to 315 of SEQ ID n° 15
- nucleotide n° 221 to 244 of SEQ ID n° 16
- nucleotide n° 363 to 382 of SEQ ID n° 16
- nucleotide n° 305 to 324 of SEQ ID n° 17
- nucleotide n° 438 to 457 of SEQ ID n° 17
- nucleotide n° 25 to 44 of SEQ ID n° 18
- nucleotide n° 218 to 237 of SEQ ID n° 18
- nucleotide n° 51 to 70 of SEQ ID n° 19

- **nucleotide n° 252 to 271 of SEQ ID n° 19**
- **nucleotide n° 206 to 225 of SEQ ID n° 20**
- **nucleotide n° 383 to 402 of SEQ ID n° 20**
- **nucleotide n° 151 to 170 of SEQ ID n° 21**
- **nucleotide n° 511 to 530 of SEQ ID n° 21**
- **nucleotide n° 294 to 313 of SEQ ID n° 22**
- **nucleotide n° 496 to 515 of SEQ ID n° 22**
- **nucleotide n° 179 to 198 of SEQ ID n° 23**
- **nucleotide n° 271 to 291 of SEQ ID n° 23**
- **nucleotide n° 65 to 84 of SEQ ID n° 24**
- **nucleotide n° 165 to 184 of SEQ ID n° 24**
- **nucleotide n° 152 to 172 of SEQ ID n° 26**
- **nucleotide n° 586 to 606 of SEQ ID n° 26**
- **nucleotide n° 641 to 663 of SEQ ID n° 26**

10. Method for producing a **recombinant** oligophrenin 1 polypeptide, wherein a host cell of claim **6** is cultured in conditions allowing the expression of a polypeptide according to claim **4**.

11. Monoclonal or polyclonal antibodies, or fragments thereof, chimeric or immunoconjugate antibobies, which are capable of specifically recognizing a polypeptide according to claim **4**.

12. Use of the antibodies of claim 11 for detecting or purifiyng a polypeptide according to claim **4** in a biological sample.

13. Use of a nucleic acid according to any of claims ~~1, 2, 3, 7~~, **8** and 9, for detecting an abnormality in the oligophrenin 1 gene or in the transcripts of the oligophrenin 1 gene.

14. Method of *in vitro* diagnosis of a neurological disorder associated with an abnormality in the oligophrenin 1 gene or in the transcripts of the oligophrenin 1 gene, wherein one or more mutation(s) is detected **in any of the sequences of claims 1 to 3**.

15. Method according to claim 14 wherein said mutation is a one base deletion of the nucleotide 1578 as shown in SEQ ID N° 26.

16. Method of *in vitro* diagnosis according to any of claims 14 or 15 comprising the steps of :

- contacting a biological sample containing DNA with specific oligonucleotides **having a sequence as defined in claim 7**, permitting the amplification of all or part of the oligophrenin 1 gene, the DNA contained in the sample having being rendered accessible, where appropriate, to hybridization, and under conditions permitting a hybridization of the oligonucleotides with the DNA contained in the biological sample ;
- amplifying said DNA ;
- detecting the amplification products ;
- comparing the amplified products as obtained to the amplified products obtained with a normal control biological sample, and thereby detecting a possible abnormality in the oligophrenin 1 gene.

17. Method of *in vitro* diagnosis according to any of claims 14 or 15 comprising the steps of :

- producing cDNA from mRNA contained in a biological sample ;
- contacting said cDNA with specific oligonucleotides **having a sequence as defined in claim 8,** permitting the amplification of all or part of the transcript of the oligophrenin 1 gene, under conditions permitting a hybridization of the primers with said cDNA ;
- amplifying said cDNA ;
- detecting the amplification products ;
- comparing the amplified products as obtained to the amplified products obtained with a normal control biological sample, and thereby detecting a possible abnormality in the transcript of the oligophrenin 1 gene.

18. Pharmaceutical composition comprising a purified oligophrenin 1 polypeptide of claim 4 and/or a homologous polypeptide thereof, or an isolated

nucleic acid sequence encoding said polypeptide in association with a pharmaceutically acceptable carrier

19. Pharmaceutical composition comprising an anti-sense sequence **as defined in claim 7 or 8** in association with a pharmaceutically acceptable carrier.

20. Pharmaceutical composition comprising an **antibody according to claim 11.**

21. Transgenic **non-human** mammal expressing an exogenous oligophrenin 1 protein as defined in claim 4, **or being modified so as to overexpress a native oligophrenin 1 protein as defined in claim 4, or so as to express a non-functional oligophrenin 1 protein as defined in claim 4.**

22. Method for screening drugs likely to act on the signaling pathway to which the oligophrenin 1 protein belongs, wherein said drugs are tested on transgenic non-human mammals, or cells in culture, that overexpress oligophrenin 1 protein **as defined in claim 4** or express a native oligophrenin 1 protein **as defined in claim 4** that has been rendered non-functional.

23. Drug selected by the method of claim 22.

24. Pharmaceutical composition containing a drug of claim 23 in association with a pharmaceutically acceptable carrier.

25. Method of preventing and/or treating neurological disorders resulting from defects in the oligophrenin 1 gene or in the oligophrenin 1 protein or in a homologous gene or protein thereof, which comprises administering to a subject in need of a such treatment an amount of a pharmaceutical composition of claim 18 or 24 effective to prevent and/or alleviate said neurological disorders.